



AP/GP-1714  
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ext. 116

8CP-12236A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appeal of: Satish Kumar Gaggar et al.  
Serial Number: 08/841,027  
Filed: April 29, 1997  
Examiner: V. Hoke  
Group Unit Number: 1714  
For: FLAME RETARDANT POLYCARBONATE/GRAFT  
COPOLYMER BLENDS EXHIBITING HEAT AGING  
STABILITY

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

TRANSMITTAL OF APPEAL BRIEF (PATENT APPLICATION -37 CFR 192)

1. Transmitted herewith in triplicate is the **APPEAL BRIEF** in this application with respect to the Notice of Appeal filed on October 27, 1998.

2. **STATUS OF APPLICANT**  
This application is on behalf of

☒ other than a small entity  
☐ small entity

verified statement:

☐ attached  
☐ already filed

3. **FEE FOR FILING APPEAL BRIEF**

Pursuant to 37 CFR 1.17(f) the fee for filing the Appeal Brief is:

<input type="checkbox"/> small entity	\$150.00
<input checked="" type="checkbox"/> other than a small entity	\$300.00

Appeal Brief fee due \$300.00

**CERTIFICATE OF MAILING (37 CFR 1.8a)**

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being  
mailed by first class mail on the date shown below with sufficient postage as first class mail.  
Date of mailing: \_\_\_\_\_

**4. EXTENSION OF TERM**

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136 apply.

(a) X Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37

CFR 1.17(a)-(d)) for the total number of months checked below:

	Extension (months)	Fee for other than <u>small entity</u>	Fee for <u>small entity</u>
<u>—</u>	one month	\$ 110.00	\$ 55.00
<u>X</u>	two months	\$ 380.00	\$190.00
<u>—</u>	three months	\$ 870.00	\$435.00
<u>—</u>	four months	\$1,360.00	\$680.00

**Fee \$ 380.00**

**If an additional extension of time is required please consider this a petition therefor.**

— An extension for — months has already been secured and the fee paid therefor of \$ — is deducted from the total fee due for the total months of extension now requested.

**Extension fee due with this request \$ .00  
or**

(b) — Applicant believes that no extension of term is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

**5. TOTAL FEE DUE**

The total fee due is:

Appeal brief fee \$300.00

Extension fee (if any) \$380.00

**TOTAL FEE DUE \$680.00**

6. FEE PAYMENT

       Attached is a check in the sum of \$          .

  X   Charge Account No. 07-0862 the sum of \$680.00.

A duplicate of this transmittal is attached.

7. FEE DEFICIENCY

  X   If any additional extension and/or fee is required, this is a request therefor and to charge Account No. 07-0862.

AND/OR

  X   If any additional fee for claims is required, charge Account No. 07-0862

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Nora Quádrozzi

**A. Real Party in Interest**

General Electric Company is the real party in interest of the instant appeal.

**B. Related Appeals and Interference's**

There are no related appeals or interferences known to Appellants or Appellants' agent at the time of filing the instant Brief on Appeal

**C. Status of Claims**

Claims 2- 7, 9 and 10-are pending. All of these pending claims are the subject of the present appeal and are presented in the Appendix.

**D. Status of Amendments**

The preliminary amendment filed concurrently with the filing of the continuing prosecution application instantly has been entered and made of record as evidenced by the first response on the merits mailed August 11, 1997. The amendment mailed January 8, 1998 responsive to the first action on the merits has been entered and made of record as evidenced by second action on the merits, made final, mailed April 29, 1998. Applicants' amendment under 37 C.F.R. 1.116(b), mailed September 29, 1998, was denied entry, but entry was made contingent upon filing a notice of appeal. Notice of appeal was filed October 27, 1998, accordingly, the amendment under 37 C.F.R. 1.116(b) mailed September 29, 1998, should now be entered and made a matter of

## II. SUMMARY OF THE INVENTION

The present invention involves flame retardant thermoplastic compositions containing aromatic polycarbonate resin and rubber modified vinyl, aromatic-unsaturated nitrile-diene rubber graft copolymer that exhibit enhanced resistance to loss of IZOD impact properties upon exposure to heat and humidity aging (Specification, Summary of the Invention, page 2, lines 9 - 19).

## III. THE ISSUES

### A. The Rejections

#### **The Advisory Action**

The Examiner alleged that Applicant's amendment under 37 C.F.R. 1.116(b), mailed September 29, 1998, did not place the claims in condition for allowance because: " [t]he characterizations vis-a-vis Izod impact strength after one week of humidity exposure and heat does not imbue unobviousness particularly since the flame retardant composition would not ordinarily be exposed in this way."

#### **The Final Rejection**

The Examiner alleged unpatentability of claims 2, -7, 9 and 10 under 35 U.S.C. § 103(a) over any one of Gosens et al., Yang et al. And Buysch for "reasons of record." Further the Examiner stated:  
"Since the raison d'être of the ABS component's presence is to improve impact strength in PC resins (Yang et al. - col. 1, lines 34-41) and the

benefit, it is obtained after aging at 63 C and 100% relative humidity or not. Yang et al. in Table 1, example 3, relates 80 parts PC/ 114 parts total composition's weight = 61.4%; 18 parts ABS of which  $\frac{1}{2}$  is diene rubber = 9 parts/114 parts total composition = 7.8 %; 17 parts phosphate = 14.9%; and 1.0 parts Teflon = 0.87%. All of applicants claim limitations are met.

4. The above comparative analysis is equally applicable in comparing claims' limitations to the compositions of Gosens et al. or Buysch et al., as well."

#### **The First Action Rejecting the Claims**

In the first action on the merits, the Examiner concludes the rejection saying: "[b]ased on the above analysis, not only are the ingredients content ranges shown to be within the prior art's purview, the utilization of ABS in such an amount and containing as the diene content an amount which is sufficient to provide its expected benefit, that of improving impact resistance, is prima facie obvious."

#### **B. Discussion of the References**

U.S. Patent 5,643,981 to Yang et al. teaches thermoplastic resin compositions comprising 6 - 98 wt. % polycarbonate (A) , 2 - 40 wt. % styrene containing graft copolymeric resin (B), 0 - 20 wt. % styrene containing copolymer resins (C), 2 - 2 wt. % aromatic diphosphate flame retardant compound (D), 2 - 7 wt. % organic monophosphate flame retardant compound (E), and 0.1 - 2.0 wt. % polyfluoroalkyl resin (F). Yang et al. does not require the presence of a low molecular weight halogen containing flame retardant compound (G).

U.S. Patent 5, 204, 394 to Gosens et al. teaches polymer mixtures comprising polycarbonate (A), a styrene containing copolymer (C) and/or a styrene containing graft copolymer (B) and a flame retardant compound that is an alkyl or aromatic diphosphate (D). Gosens et al. does not require the presence of a mono-phosphate flame retardant (E), a polyfluoroalkyl resin (F) or a low molecular weight halogen containing flame retardant compound (G).

U.S. Patent 4,883,835 to Buysch et al. teaches mixtures of polycarbonate (A) with graft copolymers (B), copolymers (C), monophosphate flame retardant compounds (E), tetrafluoroethylene polymer (F) and a low molecular weight halogen containing flame retardant compound (G). Buysch et al. does not require the presence of a diphosphate flame retardant compound (D).

By itself Yang et al. provides no motivation to remove the diphosphate flame retardant compound from the formulation of the present invention because Yang et al require the presence of the diphosphate flame retardant compound. Combination of Gosens et al. with Yang et al. similarly fails to provide motivation to remove the diphosphate flame retardant compound. Likewise, combination of Buysch et al. fails to provide motivation to remove the diphosphate flame retardant compound. Combination of all three references fails to provide motivation to remove the diphosphate flame retardant compound.

Combination of Yang et al. with Buysch et al. provides no motivation to remove the low molecular weight halogen containing flame retardant compound. Combination of all three references fails to provide motivation to remove the low molecular weight halogen containing flame retardant compound.

The following table illustrates the compositions disclosed by the prior art references cited against the instant invention, comparing the prior art compositions to the inventive composition.

Invention	Yang et al. '981	Buysch et al. '835	Gosens et al. '394
60-90% Polycarbonate	60-98% Polycarbonate	20-90% Polycarbonate	5-95% Polycarbonate
8-15% graft copolymer	2-40% graft copolymer	0-50 graft copolymer	95-5% graft copolymer
1-10% rigid copolymeric resin	0-20% copolymeric resin	5-70% thermoplastic copolymeric resin	<u>NO</u> copolymeric resin
Three polymeric components	Three polymeric components	Three polymeric components	Two polymeric components
<u>NO</u> diphosphate FR	2-20% aromatic diphosphate FR	<u>NO</u> diphosphate FR	polyphosphate (diphosphate containing) FR
mono-phosphate FR	monophosphate FR	monophosphate FR	<u>NO</u> monophosphate FR
<u>NO</u> low molecular weight halogen containing FR	<u>NO</u> low molecular weight halogen containing FR	low molecular weight halogen containing FR	<u>NO</u> low molecular weight halogen containing FR
One FR component	Two FR components	Two FR components	One FR component
0.05-2.0 tetrafluoro- ethylene polymer	0.1-2.0 polyfluoroalkyl resin	0.05-1.0 tetrafluoro- ethylene polymer	<u>NO</u> fluoropolymer

**C. The Issues**

1. No combination of the references produces Appellants' invention.
2. Because no combination of the references produces Appellants' invention, the Examiner has engaged in picking and choosing to reconstruct Appellants' invention using impermissible hindsight.
3. The Examiner has failed to consider the differences between the prior art and the claims at issue.

**IV. GROUPING OF THE CLAIMS**

The claims are grouped as follows:

Claims 2- 7, 9 and 10 drawn to a method, accordingly the claims all stand or fall together.

**V. THE ARGUMENTS**

**A. No combination of the references produces Appellants' invention.**

By itself Yang et al. provides no motivation to remove the diphosphate flame retardant compound from the formulation of the present invention because Yang et al require the presence of a diphosphate flame retardant compound. Combination of Gosens et al. with Yang et al. similarly fails to provide motivation to remove the diphosphate flame retardant compound. Likewise, combination of Buysch et al. fails to provide motivation to remove the diphosphate flame retardant compound. Combination of all three references fails to provide motivation to remove the diphosphate flame retardant compound.

Combination of Yang et al. with Buysch et al. provides no motivation to remove the less than 100% weight halogen containing flame retardant compound. Combination

The combinations posited by the Examiner result in the substitution of the diphosphate based flame retardant compound(s) by the low molecular weight halogen based flame retardant compound. If all three references are considered as a combination there is no motivation to remove the low molecular weight halogen based flame retardant compound, taught by Buysch et al. because it substitutes for the diphosphate compound. Both Yang et al. and Buysch et al. require two flame retardant components in the blend. Furthermore the combination posited by the Examiner would possess all three flame retardant components not merely one, 1) the diphosphate of Yang et al. and/or Gosens et al., 2) the monophosphate of Yang et al. and/or Buysch et al., and 3) the low molecular weight halogen containing flame retardant of Buysch et al. The Examiner has failed to provide a rationale based on a consideration of all three references in combination, or any pairwise combination of two references, as to a basis for using only the monophosphate flame retardant component, taught instantly by Appellants.

It is well settled doctrine that a combination of references must suggest the invention under consideration.

"The Board found nothing in the references that would expressly or impliedly teach or suggest the modifications urged by the Examiner. Additionally, the Board found no line of reasoning in the answer as to why the artisan would have found the modifications urged by the examiner to have been obvious. Based upon the record, the artisan would not have found it obvious to selectively pick and choose elements or concepts from the various references so as to arrive at the claimed invention without using the claims as a guide." Ex parte Clapp, 227 U.S.P.Q. 972 (B.P.A.I. 1985)

Here two of the references suggest three polymeric components (as instantly), Yang et al. and Buysch et al. and both of them require two flame retardant components (not one as instantly). In the case of Yang et al. the flame retardant components

the diphosphate and requires the monophosphate. This combination suggests the interchangeability of the diphosphate flame retardant and the low molecular weight halogen containing flame retardant not the selective removal of either one of them. The Examiner's reliance on Gosens et al. for any basis to use a single flame retardant compound as instantly is inapposite because the Gosens et al. reference uses only two polymeric components not three. Thus there is no combination of these three references that produces a blend of three polymeric components with only one flame retardant component. "In the absence of evidence that suggests the desirability of combining references in a proposed manner, such combination is not available to preclude patentability under 35 USC 103." King Instrument Corp. v. Otari Corp., 767 F.2d 853, 226 U.S.P.Q. 402 (Fed. Cir. 1985). The Examiner's rejection based on the combination is improper because there is no combination of these three references that produces a blend of three polymeric components with only one flame retardant component. The Examiner is in error and should be reversed by the Honorable Board of Appeals.

B. The Examiner has engaged in picking and choosing to reconstruct Appellants' invention using impermissible hindsight.

Because as demonstrated *supra* no combination of the references produces a blend of three polymeric components with only one flame retardant component as instantly, the Examiner has engaged in picking and choosing to reconstruct Appellants' invention using impermissible hindsight.

"When prior-art references require a selective combination to render obvious a subsequent invention, there must be some reason for the combination other than hindsight gleaned from the invention itself. Something in the prior art as a whole must suggest the desirability, and thus the obviousness of making the combination. It is impermissible to use the claims as a frame and the prior art references as a mosaic to piece together a facsimile of the claimed invention." Uniroyal Inc. v. Rudkin-  
389 F.2d 1030, 1031 (CA-10, 1968)

Here two of the three references deal with polymer blends that contain three polymeric components, *supra*. Both references require two flame retardant components. The one reference that requires only one flame retardant component uses only two polymeric components. The expectation, based on the references cited, is that with three polymeric components in the polymer blend two flame retardant components are necessary. The direction suggested by the combination of the references is when two polymers are used in a blend only one flame retardant component is necessary, when three polymers are used in a blend, two flame retardant components are necessary. Appellants teach that only one flame retardant component is necessary, even for a polymer blend that consists of three polymers. This is contrary to the specific teaching of two of the references and contrary to the sense of the teachings of all three taken together. "Proceeding contrary to the accepted wisdom of the prior art is strong evidence of non-obviousness." W.L. Gore & Assoc., Inc. v. Garlock, Inc., 721 F.2d 1540, 220 U.S.P.Q. 303, 312 (Fed. Cir. 1983); In re Hedges, 783 F.2d 1038, 228 U.S.P.Q. 685, 687 (Fed. Cir. 1986). The Examiner has chosen the single flame retardant component of the two polymer blend of Gosens et al. and extended it to the three polymer blend of Yang et al. and Buysch et al. where both references require two flame retardant components. This is picking and choosing, especially since this picking and choosing is contrary to both the teachings of the individual references and also to the references taken together as a whole. The Examiner is in error and should be reversed by the Honorable Board of Appeals.

**C. The Examiner has failed to consider the differences between the prior art and the claims at issue.**

"Obviousness under 35 U.S.C. §103 is a question of law based on the following factual inquiries: (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at issue; (3) the level of

considerations." Graham v. John Deere Co., 383 U.S. 1, 17, 148 U.S.P.Q. 459, 567 (1966)

The Examiner's statement :

"[s]ince the raison d'être of the ABS component's presence is to improve impact strength in PC resins (Yang et al. - col. 1, lines 34-41) and the concentrations of each of the instant stipulated components is within each reference's ranges, it is immaterial whether ancillary to that particular benefit, it is obtained after aging at 63 C and 100% relative humidity or not. Yang et al. in Table 1, example 3, relates 80 parts PC/ 114 parts total composition's weight = 61.4%; 18 parts ABS of which ½ is diene rubber = 9 parts/114 parts total composition = 7.8 %; 17 parts phosphate = 14.9%; and 1.0 parts Teflon = 0.87%[.]"

completely overlooks Appellants motivation and purpose in creating the invention:

"[c]onsequently, there is a need to develop polycarbonate/ABS graft copolymer compositions which exhibit enhanced retention of impact properties upon prolonged exposure to heat and humidity (specification, page 2, lines 4 - 7)." The Examiner's statement that "[a]ll of applicants claim limitations are met " is erroneous because of Appellants' clause reciting "whereby said composition retains about 80% of the original Izod impact strength after one week aging at 63 °C at 100% relative humidity (Appendix, claim 9)." None of the cited prior art suggests or recites this condition. Further, as previously pointed out, *supra*, Appellants achieve this remarkable and unexpected effect of increased stability in heat and humidity by using only one flame retardant component not two as does the most relevant prior art.

Because retention of impact properties under conditions of high heat and humidity is nowhere recited by the prior art, Appellants' use of a single flame retardant component to achieve this effect is a new use. "Patentability of a new use (of an old material) based on an inherent, but previously unrecognized property is not precluded.

See *Wick*, 727 F.2d 1521, 220 U.S.P.Q. 601, 607 (Fed. Cir. 1984). Because the

issue" the Examiner has failed to recognize a new use and has failed to recognize the patentability of Appellants novel process. Appellants' respectfully submit that the Examiner's allegation of *prima facie* obviousness has been rebutted. The Examiner is in error and should be reversed by the Honorable Board of Appeals.

## VI. CONCLUSIONS

Because no combination of the references produces Appellants' invention, the Examiner's allegation of *prima facie* obviousness has been rebutted.

Because the sense of all the references cited teaches away from Appellants' invention, the Examiner's allegation of *prima facie* obviousness has been rebutted.

Because Appellants' teach a new use, using fewer components than required by the art of record, the Examiner's allegation of *prima facie* obviousness has been rebutted.

Because the Examiner has failed to consider "the differences between the prior art and the claims at issue" the Examiner's allegation of *prima facie* obviousness has been rebutted.

Therefore, Appellants having rebutted the *prima facie* case alleged by the Examiner, Appellants respectfully submit they are entitled to a notice of allowance from the Honorable Board of Appeals.

"If examination at the initial stage does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of the patent. See *In re Grabiak*, 769 F.2d 729, 733, 226 USPQ 870, 873

1985-1986, 20 USPQ2d 1112

Appellants therefore respectfully request the Honorable Board of Appeals to reverse the Examiner's rejection of claims 2- 7, 9 and 10 and to allow claims 2- 7, 9 and 10, all of the claims currently on appeal.

Respectfully submitted:

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APPENDIX A

The claims standing on appeal are:

2. The method of claim 9 wherein said polycarbonate resin is a bisphenol A polycarbonate resin.
3. The method of claim 2 wherein said graft copolymer is an acrylonitrile-butadiene-styrene graft copolymer having a rubber level of between 60 to 85 percent based on the total weight of the copolymer.
4. The method of claim 3 wherein said phosphate is an aromatic phosphate.
5. The method of claim 9 wherein said aromatic polycarbonate resin is a combination of a moderate molecular weight polycarbonate and a low molecular weight polycarbonate.
6. The method of claim 5 wherein said vinyl aromatic-vinyl cyanide rigid copolymer is a styrene-acrylonitrile copolymer having a number average molecular weight of between 10,000 and 100,000.
7. The method of claim 9 wherein said aromatic polycarbonate resin is present at a level of from 75 to 85 percent by weight based on the total weight of the composition, said graft copolymer being present at a level of from 8 to 10 percent by weight based on the total weight of the composition.
9. (Amended) A method for improving heat/humidity aging resistance of a flame retardant thermoplastic composition, comprising the steps of:
  - (a) providing an aromatic polycarbonate resin present at a level of from 60 to 90 percent by weight based on the total weight of the composition,
  - (b) providing a vinyl aromatic-unsaturated nitrile-diene rubber graft copolymer present at a level of from 8 to 15 percent by weight based on the total weight of the composition,

level of from 1 to 10 percent by weight based on the total weight of the composition,

- (d) providing a phosphate present at a level of from 3 to 15 percent by weight based on the total weight of the composition; and
- (e) providing a tetrafluoroethylene polymer present at a level of from 0.05 to 2.0 percent by weight based on the total weight of the composition,

wherein

said diene rubber of said graft copolymer is present at a level of from 6 to 12 percent by weight based on the total weight of the composition

whereby

said composition retains about 80% of the original Izod impact strength after one week aging at 63 °C at 100% relative humidity.